Collaborative Research (How to play nice)
Robbin Hickman
UNLV
Department of Physical Therapy
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Why should we care about collaborative research?
"Most of the work still to be done in science and the useful arts is precisely that which needs knowledge and cooperation of many scientists...it is necessary for scientists and technologists to meet...even those in branches of knowledge which seem to have least relation and connection with one another."
-Antoine Lavoisier

Why should we care about collaborative research?
• 3 reasons (at least)
  – Volume of information we have to deal with in our own fields is huge
  – UNLV has established it as a priority
    • Collaborative Research and Education (CoRE) initiative
    – "incubator for new ideas and new thinking at UNLV"
  – The whole created by collaboration is greater than the sum of the individual contributors
Consider how whole can achieve something you may not be able to envision independently.

Trend toward increased collaboration

- Funding sources are under stress
  - All sponsors seeking ways to maximize their support
- Investigators increasingly need complementary skills
  - Research is increasingly complex and inter-related
- Current technology eases long-distance collaboration
  - Internet, eMail, networked systems, web-based technology
- Bayh-Dole Act encourages tech transfer
  - 1980 Federal Act allows universities to keep ownership
- Collaborations seem to improve the science

UNLV researchers are getting on board

UNLV

We play well with others

UNLV FELLOWSHIPS

Call for Applications
What is Research Collaboration?

Participation of one or more individuals in significant aspects of a research study.
Examples:
- One researcher using another researcher's equipment. (SEM, TEM, NMR)
- Partnerships between two or more researchers sharing ideas.
- Multi-researcher interface and sharing in a central location. (Core facilities - Genomics lab)
- Partnerships between University researchers and those outside of the university. (Industry, National labs)

Benefits

- Skills brought to project not typically found in individual researcher (complementary skills)
- Interdisciplinary issues can be better studied
- Synergies
- Serendipity

Benefits

- With modern technology, long-distance collaborations are possible and can lead to increased perspectives
- Bayh-Dohl act encourages technology transfer
- Provides expanded capacity (human and equipment) - cheaper and economical
- Division of labor (you do x and I do y and we share)
Benefits
- Opportunity to learn from other disciplines (new thoughts, ideas, models, perspectives) - Genetic algorithm
- Opportunity to engage in collegiality
- May increase likelihood of funding – federal agencies emphasize collaboration

Benefits
- Research centers/institutes may provide a professional and welcoming structure for the community and potential external collaborators
- May allow for testing of similar hypotheses simultaneously by different individuals and also on different systems

Potential Issues
The most frequent problem in collaborations is communication

“Most often, problems arise in scientific collaborations because the scientists failed to explicitly define their expectations of one another.”
“Preempting Discord: Prenuptial Agreements for Scientists” – Howard Gadlin and Kevin Jessar, NIH Ombudsman
Potential Issues – Collaborations within the University

- Authorship disputes
- Lack of compliance (“that was my collaborator’s job”)
- Improper attribution or credit
- Disagreement about sharing time, work, data, and resources
- Disputes over disseminating findings
- Researcher’s intellectual property
- Who gets credit for Promotion & Tenure and CVs

Potential Issues – Collaborations within University

- Researchers at different career levels, imbalance of power and benefits (Assistant Professor versus Professor)
- Oversight of students and postdocs on collaborative projects
  - Who is responsible?
  - Who do they take direction from?
  - What level of credit will they receive?
- Liability

Potential Issues – Collaborations with Others

All of the previous concerns plus:
- Non-profit vs. for-profit perspectives
- Which entity owns the Intellectual Property (what fraction of it)
- Ability to disseminate information (proprietary information, trade secrets, etc). This has the potential to be especially damaging to graduate students and junior faculty.
- Different operating parameters may lead to more compliance/legal requirements – material transfer agreements, review by multiple IRBs, etc.
- Differing ethical and cultural standards and customs.
Tips for Successful Collaborations

• Communicate, communicate, and communicate
  – Don’t make assumptions, especially with external for profit collaborators
  – Define expectations of who will do what – define assignments and expected outcomes
  – Agree on authorship in advance – each discipline has its own standards of authorship

Tips for Successful Collaborations

– Determine data and material management practices, make sure everyone understands who will have primary responsibility for data and materials and what everyone’s role is
– Agree on intellectual property (IP) ahead of time, review the university’s IP policy. Determine if any collaborators are bringing IP into the project and likely IP outcomes of the project
– Discuss accountability to the project. All institutions must observe federal rules, disclose Conflicts of Interest ahead of time.

Ethical considerations

• Be aware of the need for review and approval from Institutional Review Board …..human subjects
  – ... required for questionnaires, use of patient records (even anonymous), oral histories, etc……..NOT JUST BIOMEDICAL. Also, 'exempt' is a category, it does not imply an investigator is 'exempt' from the application process

• Be aware of the need for Institutional Animal Care and Use Committee
  – ... required for use of all vertebrate animals. Again, 'exempt' is a category, it does not imply an investigator is 'exempt' from the application process
Some Collaborations May Need Formal Written Agreements

- Teaming Agreements
- Collaboration Agreements
- Intellectual Property Agreements
- Material Transfer Agreements
- Memorandums of Understanding
- Data Sharing Plans
- Facility Use Agreements
- Subawards

Bottom Lines

- Play nice
- Be proactive

Examples of Rebel Collaborations

- Brendan O’Toole (ME) and David Hatchett (Chemistry)
- Dale Devitt (Life Sciences) & David Costa (Math)
- J. Dufek (Kin. Nutr. Sci); R. Hickman & S.-P. Lee (PT); B. Morris (E & CE)
- Bob Boehm (ME) & Solar Industry & Architecture, Pulte Homes
- Rama Venkat (EE) & Tecnovision, Veeco
- Stan Smith (Life Sci) & DRI/UNR
Case study #1
(Modified from NIH Office of Research Integrity)

• Yolanda, a graduate student in Prof. Zhu’s lab, is talking with Wanda, Prof. Zhu’s secretary. She notices the title page of a manuscript atop a pile of papers on Wanda’s desk. When she looks at it more closely, Yolanda is surprised to see that there are only three co-authors: her, Prof. Albert, and Prof. Zhu.

• Four months ago, Yolanda spent several weeks in Prof. Albert’s lab at a different university with Ben Brown (a post-doctoral scholar). Ben taught her the experimental technique for her thesis, gave advice about the experiment, and reviewed her literature review and methods section for her thesis.

• “Wanda, I think there’s an error here,” Yolanda begins. “Ben Brown’s still missing from the co-authors, and I know I put a note on the last draft about this.”

Case study #1

• “Oh, now that you mention it, I do recall seeing his name before,” replies Wanda. “Well, what I got from Prof. Zhu before he left on his trip was what he told me was the final version. I’m supposed to finish up the manuscript and get it sent out to the Journal of Important Research today and I can’t add an author without Prof. Zhu’s permission.”

• “But you can’t do that,” exclaims Yolanda. “It wouldn’t be fair. You’ve got to put Ben’s name back on the paper before you send it.”

• Questions:
  • What were Yolanda’s obligations in this case?
  • What were the options for resolution of this issue?

Case study #2
(Modified From Stevens Institute of Technology)

• After 4 years of funding from NSF, Dr. Jane Doe in Computer Science at UNLV and Dr. John Smith in Computer Science at UC Berkeley and their respective graduate students have developed a new kind of search-engine algorithm that they feel could directly compete with Google, Yahoo, or MSN. In fact, technical representatives from Google are visiting tomorrow to discuss the technology and representatives from MSN are scheduled to visit the next week.

• The scientists both have tenure at their respective institutions but disagree on issues of the intellectual property associated with this major development. Dr. Doe wants to negotiate a license with either Google or MSN and Dr. Smith wants to create a spin-off company. The disagreements have become so heated that the collaboration is threatened.
Case study #2
(Modified from Stevens Institute of Technology)

Consider the following questions:

- With representatives coming from Google and MSN, what is the first thing that both investigators should do immediately?
- Why do the administrative offices have to be involved? They didn’t develop the technology and they will probably just slow down the discussions.
- How could the current discord among the investigators have been prevented?
- Are there any laws, regulations, or institutional policies that may apply?

Case Study #3
(Modified from NIH Office of Research Integrity)

- Dr. March walks into the office of Ethel Nightingale, and drops a packet of papers into her “in” box. Ethel takes a quick look and sees that it is a reimbursement request for the meeting that Dr. March organized among the group of researchers collaborating on a project funded by the NIH.

- Glancing a bit farther down the page, Ethel notices that there is a charge for $6,000 for 10 people for room and board. Ethel knows that this is being charged to an NIH grant and questions the amount with Dr. March and the fact that alcohol was purchased.

- Dr. March responds, “Well, it could have been less, but we wanted to be sure the attendees would be comfortable. You can be creative with this type of accounting.” Dr. March says, taking the papers from Ethel, “let me just increase the number attending to 20, and that should take care of any cost questions the bean-counters might have”. “The NIH is getting their money’s worth – it was a very productive meeting.” “Do what you need to do to make this charge go through” concludes Dr. March as she hands the papers back to Ethel.

Questions:

- What are the conflicts in this situation for Ethel? What can she do?
- What about for Dr. March? What should she have done differently?
- What obligation does the university have to NIH?
Resources

- Office of Technology Transfer
  - Office of Research
    Office: FDH 331
    Phone: (702) 895-0456
    Email: stan.smith@unlv.edu
    Fax: (702) 895-5464
    Mail Stop: 1087

- Office of Research Integrity – Human Subjects Research
  - 4505 Maryland Pkwy
    Box 451047
    Las Vegas, NV 89154-1047
    Phone: (702) 895-2794
    Toll Free: (877) 895-2794
    Fax: (702) 895-0805

- Dr. Lori Olafson
  Interim Director, Research Integrity
  lori.olafson@unlv.edu

Questions?

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